

What is claimed is:

1. A stereoscopic image display apparatus comprising:
a light source unit which modulates and emits a light beam having directivity;
a light deflection member which comprises a deflection element deflecting the light beam from the light source unit to form a convergence point; and
a beam scanning device which two-dimensionally scans the light beam from the light source unit with respect to a predetermined portion of the light deflection member,
wherein the light deflection member is movable in a plane in which the light deflection member is disposed, and the movement of the light deflection member is performed in synchronization with the modulation of the light beam by the light source unit and the scanning of the light beam by the light beam scanning device.
2. The stereoscopic image display apparatus according to claim 1, wherein the light deflection member is movable in a horizontal direction.
3. The stereoscopic image display apparatus according to claim 2, wherein the light deflection member is formed of a plurality of the deflection elements arranged in the horizontal direction.
4. The stereoscopic image display apparatus according to claim 1, wherein the light deflection member is formed of a plurality of

the deflection elements stacked one on another in a vertical direction, the deflection elements are shifted horizontally with one another by a predetermined rate, and the light deflection member is movable in the vertical direction.

5. The stereoscopic image display apparatus according to claim 1, further comprising a relay optical system which makes the light beam that has passed through a plurality of the convergence points, form plural image-forming points,

wherein a distance between the image-forming points adjacent to each other is equal to or smaller than a pupil diameter of an observer.

6. The stereoscopic image display apparatus according to claim 1, further comprising a relay optical system which makes the light beam that has passed through a plurality of the the convergence points, form images,

wherein, at a position of an eyeball of an observer, a distance between the light beams emerged from the relay optical system and adjacent to each other is equal to or smaller than a pupil diameter of the observer.

7. The stereoscopic image display apparatus according to claim 1, further comprising a relay optical system which makes the light beam that has passed through the convergence point, form an image, and a diffusion member which diffuses the light beam only in a vertical direction is disposed closer to an observer than the

relay optical system.

8. The stereoscopic image display apparatus according to claim 1, further comprising a field optical system which is disposed between the beam scanning device and the light deflection member.

9. The stereoscopic image display apparatus according to claim 1, wherein the deflection element is a convex lens.

10. The stereoscopic image display apparatus according to claim 1, wherein the deflection element is concave mirror.

11. The stereoscopic image display apparatus according to claim 1, wherein the deflection element is a diffraction optical element.

12. A stereoscopic image display apparatus comprising:

a light source unit which modulates and emits a light beam having directivity;

a light deflection member which comprises a deflection element deflecting the light beam from the light source unit to form a convergence point;

a relay optical system which makes the light beam that has passed through the convergence point, form an image;

a first beam scanning device which horizontally scans the light beam from the light source unit with respect to the light deflection member; and

a second beam scanning device which vertically scans the

light beam from the light deflection member with respect to the relay optical system,

wherein the light deflection member is movable in a plane in which the light deflection member is disposed, and the movement of the light deflection member is performed in synchronization with the modulation of the light beam by the light source unit and the scanning of the light beam by the first and second beam scanning devices.

13. The stereoscopic image display apparatus according to claim 12, wherein the light deflection member is movable in a horizontal direction.

14. The stereoscopic image display apparatus according to claim 13, wherein the light deflection member is formed of a plurality of the deflection elements arranged in the horizontal direction.

15. The stereoscopic image display apparatus according to claim 12, wherein the light deflection member is formed of a plurality of the deflection elements stacked one on another in a vertical direction, the deflection elements are shifted horizontally with one another by a predetermined rate, and the light deflection member is movable in the vertical direction.

16. The stereoscopic image display apparatus according to claim 15, wherein the deflection element has an optical power only in a horizontal direction.

17. The stereoscopic image display apparatus according to claim 12, wherein the relay optical system makes the light beam that has passed through a plurality of the convergence points, form plural image-forming points, and a distance between the image-forming points adjacent to each other is equal to or smaller than a pupil diameter of an observer.

18. The stereoscopic image display apparatus according to claim 12, wherein the relay optical system makes the light beam that has passed through a plurality of the convergence points, form images, and at a position of an eyeball of an observer, a distance between the light beams emerged from the relay optical system and adjacent to each other is equal to or smaller than a pupil diameter of the observer.

19. The stereoscopic image display apparatus according to claim 12, further comprising a diffusion member which diffuses light only in a vertical direction is disposed closer to an observer than the relay optical system.

20. The stereoscopic image display apparatus according to claim 12, further comprising a field optical system which is disposed between the beam scanning devices and the light deflection member.

21. The stereoscopic image display apparatus according to claim 12, wherein the deflection element is a convex lens.

22. The stereoscopic image display apparatus according to claim 12, wherein the deflection element is concave mirror.

23. The stereoscopic image display apparatus according to claim 12, wherein the deflection element is a diffraction optical element.

24. A stereoscopic image display apparatus comprising:

a light source unit which modulates and emits a light beam having directivity;

a light deflection member which comprises a plurality of deflection elements, each of which deflects the light beam from the light source unit to form a convergence point; and

a beam scanning device which two-dimensionally scans the light beam from the light source unit with respect to a predetermined portion of the light deflection member,

wherein the plurality of deflection elements are arranged in the light deflection member such that the number of the convergence points formed in a horizontal direction is larger than the number of the deflection elements arranged in the horizontal direction.

25. The stereoscopic image display apparatus according to claim 24, wherein, in the light deflection member, a plurality of the deflection elements are arranged as a row in the horizontal direction, a plurality of the row are provided in a vertical

direction, and the convergence points formed by each of the deflection element rows are horizontally shifted with the convergence points formed by the other deflection element rows.

26. The stereoscopic image display apparatus according to claim 25, wherein the convergence points formed by each of the deflection element rows are horizontally shifted with the convergence points formed by the other deflection element rows by an amount smaller than a pitch of the convergence points in the horizontal direction.

27. The stereoscopic image display apparatus according to claim 25, wherein each of the deflection element rows is horizontally shifted with the other deflection element rows.

28. The stereoscopic image display apparatus according to claim 24, wherein the deflection element is a convex lens.

29. The stereoscopic image display apparatus according to claim 24, wherein the deflection element is concave mirror.

30. The stereoscopic image display apparatus according to claim 24, wherein the deflection element is a diffraction optical element.

31. The stereoscopic image display apparatus according to claim 24, further comprising a relay optical system which makes the

light beam that has passed through the convergence point, form an image.

32. The stereoscopic image display apparatus according to claim 24, further comprising a diffusion member which diffuses the light beam from each of the convergence points in a vertical direction.

33. A stereoscopic image display system comprising:
the stereoscopic image display apparatus according to claim 1; and

an image information supply apparatus which supplies image information for modulating the light beam emitted from the light source unit to the stereoscopic image display apparatus.

34. A stereoscopic image display system comprising:
the stereoscopic image display apparatus according to claim 12; and

an image information supply device which supplies image information for modulating the light beam emitted from the light source unit to the stereoscopic image display apparatus.

35. A stereoscopic image display system comprising:
the stereoscopic image display apparatus according to claim 24; and

an image information supply apparatus which supplies image information for modulating the light beam emitted from the light source unit to the stereoscopic image display apparatus.